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Intermittent Hydrarthrosis—Two Cases

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REVIEW of the American literature since 1941 reveals no reported cases of intermittent hydrarthrosis, a condition which was first reported by Perrin[8] in 1845, and apparently again by the same author in 1878. Relatively few cases have been reported since then, apparently only 120 in all. Two additional cases are reported herein, in the hope that interest will be stimulated with improvement in treatment.

Two varieties of intermittent hydrarthrosis have been encountered and reported: (1) symptomatic intermittent hydrarthrosis, and (2) idiopathic intermittent hydrarthrosis. In the first classification the recurrent joint swellings are harbingers of typical rheumatoid arthritis. Idiopathic intermittent hydrarthrosis usually occurs in persons who have recurrent attacks without the development of rheumatoid disease later.

ETIOLOGY

The cause of this condition is apparently unknown, but it is worthy of note that all cases reported have been in the white race, that often the disease has occurred in persons with brucellosis (Sharpe[12] and Baker[1]) and that often it was of definite allergic origin (Lewin and Taub,[7] Berger,[2] Schlesinger,[10] Cook,[3] and Service[11]).

SYMPTOMS

Any joint may be involved, but the condition has a predilection for the knee, which was the joint affected in the cases to be reported. In most cases the onset is in the third or fourth decades of life. The disease may be bilateral, but in a majority of the cases reported a single joint was involved. Onset is usually abrupt with moderate pain, definite joint swelling, and limitation of motion. There are usually no signs of local inflammation, regional adenopathy, or lymphatic involvement. Even mild febrile reaction is rare. After a variable period of time, which is usually specific for each individual, the joint effusion disappears, then reappears in from seven to 21 days. Local disability, with limitation of motion and occasional pain on pressure, is usual. The total duration of the cycles of this disease may be up to 20 plus years. Laboratory findings are extremely variable. Secondary anemia and an accelerated sedimentation rate may be present.

DIFFERENTIAL DIAGNOSIS

Differential diagnosis is usually not too difficult, since complete examination of the patient can usually eliminate trauma, joint manifestations of systemic diseases (tuberculosis, gonorrhea, syphilis, or brucellosis), and reactions due to administration of antigens or vaccines. Radiographic examinations show a classical picture of severe hydrarthrosis without remarkable joint changes.

PATHOLOGY

Authorities do not agree as to the exact changes to be expected. Ghormley and Deacon[4] reported slight thickening of the lining layer of cells without perivascular thickening or fibrosis. Schlesinger[10] stated that the knees are usually involved because they have an especially large arterial circulation, extraordinarily well supplied with medullated nerve fibers. Porter[9] and others have observed changes consistent with those of early rheumatoid arthritis. Examination of aspirated synovial fluid will often show 100 cells per cu. mm., with more than 50 per cent of the cells being polymorphonuclear leukocytes. Culture and experimental animal inoculations have not consistently shown growth or infection in any cases reported.

TREATMENT

Salicylates have been used in full doses with no response. Older forms of therapy (quinine, arsenic, aspiration and lavage of the affected joints with the introduction of antiseptic solutions, desensitization, and peptone) have all been

tried without success. Hench[6] reported improvement during pregnancy. Roentgen therapy has been used with success in one case. Radical synovectomy has been advocated by Key.[5] Because the periodicity of the disease has suggested a possible allergic basis, elimination diets, histaminase, ergotamine tartrate, and desensitization with suitable antigens have all been tried with indifferent success. The sheet-anchor of treatment appears to be rest of the affected part and elimination, if possible, of the causative factor.

CASE REPORTS

CASE 1: A 37-year-old white male, a store manager, had pain and swelling in the right knee in 1942 after being inducted into the Army where he did considerable marching. After marching he noticed pain in both legs. This pain was relieved by lying down, but he often noticed swelling of the right knee which did not disappear after rest. After his discharge from the Army in 1945, the right knee swelled more often, remained swollen for longer periods, and in the year preceding this report had not returned to normal size.

No history of familial disease was obtained.

The patient had had diphtheria at the age of eight, scarlet fever at six, appendectomy at 25, lobar pneumonia at 36. He denied asthma, hay fever, or urticaria by name and symptom except for hives, intermittently, in 1943, when he had swelling of the lips, face, and ears five or six times following ingestion of unusual foods. During 1947, he was treated energetically elsewhere with salicylates, penicillin, repeated aspirations of the right knee, therapeutic trials of colchicine, and a low-purine diet. Physical therapy, with diathermy to the knee, was given without benefit. The patient drinks three to four cups of coffee daily, and smokes one to one and a half packages of cigarettes a day. Alcohol is used only in extreme moderation.

The blood pressure was 102 mm. of mercury systolic and 60 mm. diastolic. Temperature, pulse and respirations were normal. Moderate mycotic infection (aspergillosis albicans) was present in both external auditory canals. There was moderate fibrinous pleurisy at the posterior base of the left lung, but ventilation was adequate. The heart was normal in size, shape, and rate. There were no palpable masses or tenderness in the abdomen. The genitals, including the prostate and seminal vesicles, were grossly normal. The right knee was swollen in all diameters (Figure 1). The patella was ballotable, and the joint contained 90 cc. of clear fluid on aspiration. Deep and superficial reflexes were normal.

Laboratory Findings: Results of Wassermann, brucellosis, skin, and agglutination tests showed no abnormalities. On repeated blood examinations, hemoglobin, erythrocytes, leukocytes and differential count were within normal limits. Except for rare appearance of granular casts, results of repeated urinalyses were normal. The blood sedimentation rate (Cutler) varied from 5 to 18 mm. in one hour, the rate depending on the activity of the hydrarthrosis.

Smears from the nose, throat, and prostate showed no unusual bacteria. Radiographs of the right knee were reported as showing no abnormalities in the bone or joints. The joint fluid was examined repeatedly by Gram stain, Wright stain, and Ziehl-Neelsen stain and culture. No organisms were found. The joint fluid usually contained many cells, of which 90 per cent were usually polymorphonuclear leukocytes. Skin tests with antigens showed significant reactions to tuna fish, milk, the common grasses, and severe reactions to sagebrush and mug wort. Desensitization was obtained by use of suitable antigens, but with no appreciable effect on the hydrarthrosis.

Clinical Course: Antihistaminics in large doses had no observable effect on the knee. Administration of the prescribed antigens gave slight symptomatic relief. An elastic bandage support was used regularly with moderate relief of pain.

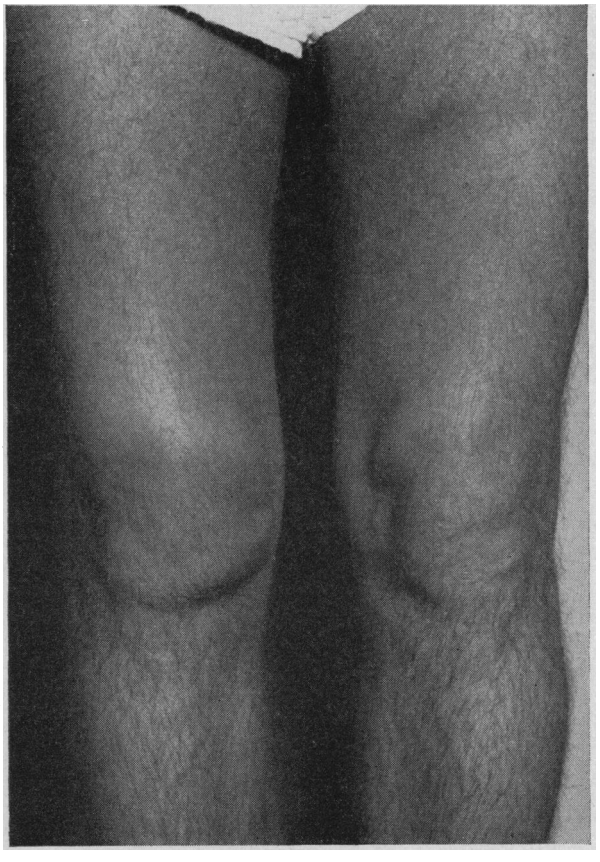

Figure 1.—Showing swelling in right knee.

Over the course of the disease, the knee swelling has gradually increased and has lasted longer with each attack. It is believed the disease may eventually progress to rheumatoid arthritis, but the low sedimentation rate and lack of response to salicylates casts doubt on this prognosis.

The most recent roentgenograms, taken in 1948, showed pronounced atrophic arthritis of the left hip and minimal chronic coccygitis, but the right knee remained unchanged.

Gold is being given regularly with pronounced relief of pain, which strongly suggests intermittent hydrarthrosis on a rheumatoid basis.

CASE 2: The patient, a white male 12 years of age, was first observed August 9, 1947, with a mild attack of acute anterior poliomyelitis. After six weeks in the hospital there was 50 per cent residual loss of function in the left lower leg below the knee but practically no atrophy in the affected muscles. On January 29, 1948, it was noticed that the left knee was greatly swollen and mildly tender. Aspiration yielded 80 cc. of clear fluid. Radiographs showed abnormal fullness of the prepatellar bursa. On February 9, 1948, 170 cc. of fluid was removed.

Besides the previously mentioned poliomyelitis, the patient had had the usual diseases of childhood without complications. Tonsillectomy had been done in October 1948. The mother and a maternal aunt have severe seasonal hay fever.

The temperature, pulse, and respirations were normal. Blood pressure was 102 mm. of mercury systolic and 70 mm. diastolic. Except for mild allergic rhinitis and simple obesity, the positive physical findings were limited to the

left knee. It was symmetrically swollen, the patella was ballottable, and motion was restricted 25 per cent because of the swelling.

Examination of the blood showed hemoglobin content of 12.5 grams per 100 cc. Erythrocytes numbered 4,140,000 and leukocytes 7,400 with a normal differential. The urine was normal on repeated urinalyses. Results of tuberculin, Wassermann and brucellosis agglutination tests were negative. The sedimentation rate (Cutler) was 16 millimeters in one hour.

Skin testing showed reactions of significance to rye grass, orache, poverty weed, wool, silk, chili powder, mustard, tuna fish, and wax beans. A suitable antigen was administered without demonstrable benefit. Antihistaminics, salicylates, and splinting have been used regularly without apparent change in the periodicity of the swelling. During the time of observation up to the time of this report, the knee swelled at regular intervals of about three to four weeks and remained swollen from seven to 14 days. Never in that time did it return entirely to normal size. The tonsillectomy done elsewhere in October 1948, did not cause change in the hydrarthrosis. It is believed this case represents true idiopathic intermittent hydrarthrosis.

SUMMARY

Two cases of intermittent hydrarthrosis are reported. Treatment has been without much benefit in either case. It is believed that unreported cases of this joint phenomenon must occur more commonly than a brief review of American literature would indicate. Further work remains to be done to develop satisfactory treatment.

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